

Tiltman

04-78

TILTMAN, JOHN
Brigadier General~~Schorreck, Henry
Goodman, Davis~~
Tiltman: 1 Nov 78

Schorreck: A question regarding your impressions of who did what on the American side on the Red, and especially the Purple, when the Sinkov mission came over to Britain and you were introduced to the fact that the Americans had progressed on the Purple machine. Do you recall how that was presented to you in terms of did the Army solve the Purple machine? The American Army? SIS? And, if so, was it the Army that built the machine, the analog, or was it the Navy? How was all that presented to you?

Tiltman: Oh dear, this is terrible. The one thing I do remember very well is what Mr. Friedman used to say about the Purple machine. ~~Being~~ ^{He had} as far as I know ~~and~~ ^{and this is personal} he never claimed ^{as far as I know,} to do anything except that he was the person who managed to get the State Department ^{to disgorge} the discourse, the long crib on which the Purple machine was broken. This was a long handout which was passed on by the Japanese in English in several parts. And you know how the Purple machine worked - there was a 20 ring and a 6 ring and generally speaking, they would solve the 6 ring which was originally vowels and so when they had a complete isolog as they did in this case in English, they were able to fill in the whole of the plain text against the cipher. My impression, and it's only what I remember, is that Friedman's own personal contribution was that, by his influence, he managed to get a copy of this handout from the State Department. ?

senior and eventually get it.

Schorleck

Goodman: You're familiar with the reason for this question...

there had been comments made from that time to this day as to who did what on the Purple machine in terms of solving the Japanese system and in terms of creating our own analog machine.

Tiltman: Well, at the risk of saying something you know already, I'll tell you what my experience was. We solved the Red machine, as far as I know, some considerable time before you did. Not because we were clever^{er}, but because we were getting material and you weren't getting it. That was done by a combination of

Oliver Strachey and Foss, in our office. I worked a little bit on the Red machine^{with Foss}, trying to work out paper methods^{of doing these things and so forth}. Then

came the Purple machine. I don't remember any work being done on it prior to our entry into the war in 1939. I don't, I can't remember now when it was introduced, but Foss^{who} was a very good man indeed. He had charge of the work on it in our office, and from his experience of the Red machine, he^dworked out the 20 ring and the 6 ring business, and we had in certain messages we had the vowel ring pegged up so that we could have a shot at some of the intervening Japanese. Then he was sick for about 6 months^{and} when we were all occupied with the Germans and it never progressed any further. So, we really made no contribution at all; we don't pretend that we made any contribution whatever to the Purple machine. How the thing was presented to us, I don't know. The analog was designed and built by Rosen, I think, Leo Rosen, you know, who was one of four people who came over with Sinkov, and so on. And one of the first things they did when they came

across was this magnificent gesture that before really having any information from us, they set up the Purple machine analog in our office and I had nothing at all to do with it. I never worked on the Purple machine. So I haven't very much to tell you there, except that it was, as I say, presented to us before...I gave them everything I could. Eventually we had to argue out about the Enigma, but I gave them everything I could. They made the first gesture and I think perhaps it's safe to say the Navy was just about level with us if not a little in advance on Japanese Navy. They presented to us a most beautifully bound book with all the keys and all the recoveries and so on, which was something we couldn't do for them. We didn't do it on quite the same scale.

Goodman: Let me ask a less polite question. You had a long association with Americans since then, over this period of time and you talked to many of the earlier individuals; the people who were really in the beginning. Do you recall them discussing or claiming individually credit for the Purple solution?

Tiltman: No.

Goodman: It was always presented to you as a team effort?

Tiltman: Yes. I did know, as has been acknowledged, that Raven made a very big contribution to simplify their use of indicators.

Goodman: That was, of course, sometime afterward, I believe.

Tiltman: Yes. At the original break-in...I don't, I'm afraid I don't know.

Schorreck
Goodman: Do you recall the Fellers incident? The U.S. Military Attache in Cairo, and he was sending back his reports to the United States and they were being...

Tiltman: That was the one...all I recall about it is...
What was his name, Fellows?

Schorreck
Goodman: Fellers, F-E-L-L-E-R-S.

Tiltman: This is connected with...in my mind with the New Zealand Sentry - I can't remember why.

Goodman
Goodman: You recall, of course, the Coventry episode or incident and the Lesley^{le} Howard incident^s?

Tiltman: Well, I know what you're talking about.

Goodman: Yes, would you discuss those for us in terms of your knowledge of them?

Tiltman: Which was the first one?

Goodman: I think Coventry came first, Whether or not...

Tiltman: You mean whether or not this claim that we knew the raid was going to be on Coventry, and that Churchill refused the warning? I never did believe the story. I haven't any special knowledge. It didn't come my way. I wasn't working with Enigma people before. My opinion isn't worth having, but I'm pretty sure in my own mind that that story...that the fact that Coventry was going to be raided...I can remember the planes streaming over and they were going to Coventry and that sort of thing. As far as I know, that's untrue. It comes, I think, first in Winterbotham's book. But, Winterbotham...I don't trust anything he says; I don't think anybody does.

Schorreck: It figures.

Tiltman: You won't get him in here. He's been debriefed...just been debriefed, actually. But, first of all he said, "Oh yes, of course we broke the Purple before we got the information from you, as I think we probably did." And then he hedged off as he didn't really know the answer. I feel that somebody must know, I mean there must be some record that JN-25 was in production before our man Burnett made contact. He went to Corra^eg^lador.

Goodman: What date was that, Brigadier?

Tiltman: Got me.

Goodman: '39....?

Tiltman: '39 or '40, but I don't know, actually.

Schorreck: That's tough...that's a tough date. Would have been the people at Corra^eg^lador, if it had been anybody.

Tiltman: Yes.

Schorreck: And that means that Rudy Fabian might know - Leitwiler might know, John Leitwiler, those two.

Goodman: But there was no evidence of it, I don't think - everything we know about that time would put it after Dec '41.

Tiltman: That's why...I may be raising something...

Schorreck: That's why...that's a very difficult date to pin down...that we were reading JN-25...

Goodman: Everything we know about time would put it after Dec '41.

Schorreck: Slightly before - I knew about...Corregidor was reading it and they changed and went to B-8 around December 4th.

Tiltman: It must have been before Pearl Harbor.

Goodman: It had to be slightly before, but it still would be the '41 period.

Tiltman: I'm quite sure the exchange of Dennis and Burnett took place before Pearl Harbor.

Schorreck: Yeah - ^{all} ~~al~~right.

Tiltman: But that's all I can say. As I say, I'm sorry now I ever raised the point.

Schorreck: No, no.

Tiltman: For me, having just broken the military, it wasn't too difficult to find the same similar indicator system in the JN-25.

Schorreck: As a matter of fact, that question has been raised before and Joe Richards raised it and he got it from the GC^{GC&CS} and ~~CS~~ history; the statement that we got into JN-25 as a result of the British.

Tiltman: Is that in the British history?

Schorreck: He said he got that statement - I have not seen it, yet. But he said he got it out of there. But I'm not so sure.

Tiltman: The man who would know whether it was in the British history would be Joe Meyer - he knows the British history much better than I or anyone else.

Schorreck: Well, I now have a complete set of it, so I intend to research that. Well, could we get into some of these American names and have your impressions?

Tiltman: Fine.

Schorreck: OK - One of the questions that I would like to pose to you would be, as you were looking at the organization, both the signal intelligence service and OP-20G...

Tiltman: Yes.

Schorreck: ...let's take for a minute the signal intelligence service...could you give us your impression of where the following people fit in: Friedman, Rowlett, Sinkov, and Kullback...who was running what?

Tiltman: As far as I know, when I first came over here in '42, Kullback was working purely on German. He developed the pluralduals, the German double additives, and I don't think he had much of anything to do with Japanese at all. Sinkov certainly worked on Japanese, and what's his name, Clark?

Schorreck: Harry Clark...Larry Clark...

Tiltman: Larry Clark had a big part in the Japanese military ciphers. Who else did you say?

Schorreck: Frank Rowlett.

Tiltman: In those days, I regarded Rowlett as the best in the military; the best initial cryptanalyst. But what actual work he did himself, I don't know.

Goodman: Do you use that term "best" to include Friedman?

Tiltman: Yes. Friedman was . . . the great thing about Friedman was that he ^{was a pioneer in the field} would come in, but I don't think that he made a great contribution, personal contribution to any of the cryptanalytic successes at the beginning of the war.

Goodman: That's interesting.

Tiltman: That's my impression.

Schorreck: Dead on . . . dead on . . . dead on. How do you think. . . Let me put it this way . . . who do you think was administering the signal intelligence service from an operational standpoint. . . Freidman or Rowlett?

Tiltman: Oh, Friedman, surely.

Goodman: For the World War II period?

Tiltman: For the whole period?

Schorreck: Yes. Well, he had been ill before the war even started.

Tiltman: He had several breakdowns. He originally was to be one of the four to come over in '41. He had a breakdown. Sinkov came in his place. I met him first at a meeting in March of '42. Am I repeating myself?

Schorreck: No.

Tiltman: I brought over every bit of paper I could when I came over . . . sacks of it - everything, all of our recoveries . . . Some of it was entirely new to the American Army. Very little, if any, of it was really ^{new to the Navy} known. There was a lot of other stuff of other countries and so on . . . We had a meeting, I think probably this

was at the time of the great Palm Sunday snow - 17 inches of snow. I can remember walking down to the Main Navy Complex in a deep snow. I think probably the next day, which was a Monday after Palm Sunday, they had a meeting at which for the first time... I don't know who was in the chair, I met Admiral Wenger, and Friedman, and probably Rowlett and the others; Sinkov, I knew already, Currier, I knew already. This was an introductory session. I told them what I brought with me and what we were doing. The Enigma story, I'm sure, was discussed, but in very hushed terms, because of the security rules that had been established.

Goodman: I have a question for you about that meeting and your coming over...if you don't want to answer it, fine. What were your instructions when you came over? What were you planning to accomplish?

Tiltman: My instructions and my own feeling was that I was trying to implement our orders which were for a complete exchange. I don't think we were told anything. The Enigma story was a rough one there, because of the imposed restrictions which the United States members tried very hard to keep. They were very difficult.

Goodman: But there was no doubt in your mind that you were to consolidate a complete technical exchange?

Tiltman: Yes.

Schorreck: Did you feel there was a reluctance on the part of the Americans to impart to you the knowledge of their topmost security system? Our own COMSEC system? Did you get that impression?

Tiltman: I'll tell you what happened there. I don't know whether this particular story ought to go on record. I came over on an American troop ship, with a naval captain by the name of Sandwith. The cipher officer on board the ship, with great pride, introduced Sandwith and me to the ECM, which actually he had no right to do. It didn't actually make a difference, but he had no right to do it. But after I'd been here for a bit, Wenger and Friedman had got permission to show me the ECM machine. Joe Wenger had his permission on paper...did I come to this before?

Schorreck: No.

Tiltman: Joe Wenger had his permission on paper and Friedman didn't, and Friedman was in very serious trouble with General Strong who heard about this and hadn't been consulted. That was the cause of one of Friedman's breakdowns.

Schorreck: Very interesting...I had not heard that.

Tiltman: They had sought authority to show me, as part of the complete exchange, the ECM, which would have had to have happened very shortly, because you'll remember there was a machine, the CCM, which would convert ECM to TYPEX.

Schorreck: How about the Sigaba?

Tiltman: I don't know about the Sigaba. It's only a name to me. Unless that was the...unless that was the equipment which the American Army's Chief Signal Officer, Olmstead, invited us to send an expert to see. We sent Turing - this was in December '42...

Goodman: It would be the Sigaba, maybe.

Tiltman: For some odd reason we sent Turing, who was by no means an expert...we regarded him as a genius in our office. While he was on the high seas, General Strong heard about it and said he couldn't see it. And I had a telegram from England, I should think in December of '42, telling me not to come back until General Strong changed his mind, decisively.

Goodman: You had already been exposed to the ECM by then, right?

Tiltman: Oh yes. Had been in March or April.

Goodman: When they showed you the ECM, what was the purpose? Was it just to acquaint you with the fact that they had a high level ciphering system machine?...Establishing confidence, do you think?

Tiltman: It was just part of the exchange..I can't answer that...I just don't know.

Goodman: Did they give you documentation on the equipment or circuitry or anything like that? Did that sort of an exchange take place?

Schorreck: I think there was a discussion about....

Tiltman: I don't know..I don't know...This wasn't my line of country.?

Goodman: As Hank mentioned, there were many discussions going on then about joint secure communications, I understand.

Tiltman: I came over, the second time I came over, which was during the Turing period, Dec '41, I brought a party, an Air Force officer and a Naval officer, and it was at that time - the purpose that time was to discuss joint usage of ciphers. But I think that we were shown the ECM on my first visit.

Schorreck: I know you were.

Tiltman: I'm pretty sure we were. Then there was no question of any joint use. I think possibly Captain Sandwith may have discussed the CCM with Wenger and Safford.

Schorreck: When you first met Wenger and Safford from OP-20G, they had already reorganized, had they not? Wenger was now the operational head, or was Safford still the head?

Tiltman: Safford was still there. And I lived with Wenger for about 10 days and talked to him alot and this situation worried him a great deal. He was not the type of man to take charge over somebody else's head, but he knew he had to do it.

Schorreck: That's important, Brigadier, would you discuss that with us?

Tiltman: You are getting me into deep water.

Schorreck: It's a very...it's a crucial point. I think the reason it's crucial is to establish Captain Wenger's attitude, because if it's not, you see, what has been said is that Captain Wenger and Redman acted in cahoots to get rid of Safford, and that may not be true.

Tiltman: Well, I think it is probably true in the ^Abold sense that...how do I express this...Wenger wasn't the sort of person for any sort of underhand action or anything like that, and Redman would ride roughshod over anybody. But Wenger was deeply worried when I lived with him; I lived with him at that time. Because he knew that sooner or later, Safford would have to be pushed aside, as far as crypto-management was concerned. He'd made great contributions on the COMSEC side, but Wenger knew that he couldn't run the crypto.

Schorreck: Was that due to a lack of cryptanalytic expertise or was it due to lack of administrative expertise?

Tiltman: Well...

Schorreck: ...or both?

Tiltman: I don't know where the cryptanalytic thing came in, but I think Safford was totally unsuited for the...just as our beloved director, Commander Dennison was edged out at the beginning of 1942 by Travis...Safford just wasn't capable of running a big show like that. ^Alot of the cryptographic inventions were his. He was by way being an engineer, so I don't think he was ever anything of a cryptanalyst. I'm not aware that he was. This is something that just had to take place. I know Wenger very well, and he just wasn't that sort of person.

Schorreck: Very good. Did Wenger discuss it with you in this period?

Tiltman: Yes.

Goodman: So you got a first-hand impression of Wenger's . . .

Tiltman: I got the impression that this was something that he knew had to happen, and he wanted any advice or experience I could give of a similar takeover in our offices.

Schorreck: Was he close to Safford, personally?

Tiltman: I think so. I don't think . . . in spite of everything that's said about Army/Navy rivalry, Friedman and Wenger were very close friends.

Schorreck: Friedman and Wenger were closer friends than Friedman and Safford?

Tiltman: I couldn't say that. I didn't know Safford very well. I can't remember if I had to discuss anything with Safford, I would be just all at sea . . . I mean I didn't understand his language - he didn't express himself very well. I didn't know Safford very well. There were many many times when he never made any sense to me.

Goodman: (laughs) You, of course, talked to Redman?

Tiltman: Did I - Yes. . . when I could get a word in edgewise.
(laughs)

Goodman: Or rather he talked to you. What were your impressions of Redman? Was he knowledgeable of the business, or was he out for himself?

Tiltman: I don't know the answer to that. He was rough with me, particularly because of the restrictions we'd laid down over the Enigma, which I claimed to have cleared by sending a telegram home saying that the situation was ridiculous. He was pretty rough with me then saying German submarines were operating on the east coast of the United States, and we were withholding life and death information.

Schorreck: Did Wenger give you any of his impressions of Redman?

Tiltman: All I can tell you is that if Joe Wenger wanted to get anything out of Redman, he used to get the younger brother to try to soften him up first. What was his younger brother's name, Jack?

Schorreck: Jack.

Tiltman: This is all gossip.

Schorreck: That's fine. We have...

Tiltman: You must take into account my memory.

Schorreck: That's ^{all}/~~al~~right.

Tiltman: Very mixed, very selective.

Schorreck: Would you talk about Leo Rosen a little bit. Your impressions of Rosen. Was he...how capable was he?

Tiltman: I would have said he was a very good cryptanalyst. He was a very good technical engineer. I knew him quite well, but I didn't have anything to do with him particularly. I'm sure that he designed the first analog himself.

Schorreck: Did you have anything to do with Bob ^eFurner or ~~Harvey~~ ^{Al} Small?

Tiltman: ^eFurner was a very good cryptanalyst.

Schorreck: Was he?

Tiltman: Shy, but very good. I would say, without being able to bring out instances, he made a big contribution to all the diagnostic cryptanalysis.

Schorreck: He and Small? What was his...?

Tiltman: Al Small. Al Small was a great friend of mine. He... I don't think he was a great cryptanalyst.

Schorreck: Did you have the impression there were two layers here...the Friedman layer, with Rowlett, Sinkov, and Kullback, and then a layer down here with Rosen, of course as an engineer, but Small, and Furner - they were all together?

Tiltman: Not ⁱⁿ my impression. In dealing with the Japanese military in those days, the additives (4-digit), I dealt mostly with Al Small, who was running whatever process it was. I can remember...this again I can't date, but I can remember the Japanese. When we first got into the Japanese military, they had one page of 100 4-digit groups, which they used for the indicators and took two selected digits at the beginning of the message, probably the first and second ones, as a control, and looked it up in this page of additives and the corresponding 4-digit additives was added to the indicator. And then quite suddenly, and I can't give you a date for this, they changed that,

and instead of having one sheet of 100, they had a whole book of 10,000. Then we were completely out of business. It was at that time when I first made contact with Al Small. Because he discussed with me methods of trying to overcome this situation. I can remember his having an IBM run done which gave him all the cases of 2 messages which had 2 four-figure groups repeating at the same distance, so it was a fair chance that they might^y in depth and we put all these together and got nothing but confusion. As far as I remember, we were generally out of business on the Japanese military additives, until they introduced the new system where they had a mixed square; they didn't use the additives, the direct additives, they put it through a square. They simplified it in some other way.

Schorreck: Would that have been in '43?

Tiltman: I would think so.

Schorreck: Bang!

Tiltman: And this might have been gossip. On the other hand - Is it '43 or the beginning of '44?

Schorreck: Thought it was '43. . .

Goodman: Spring of '43.

Tiltman: Might have been right at the beginning of '43, when I was held here for the Turing incident. The cryptanalysts had difficulty in getting permission to hand this bit of information on to us. This was a particularly foolish incident, because it was broken into in Australia and India. Everybody who handled

the thing got on to this there and we had a liaison officer, my very good friend, Geoffrey Stevens, who wrote a very amusing paper headed, Odd Behavior At A Hall, obviously trying not, trying to obey their instructions not to pass this information on, but to let them know it was done personally.

Schorreck: Very good. Let's stop there for a second and turn the tape over.

Tiltman: Some information concerning this is (?)
 in the middle of it we talked about everything under the sun except
 the subject I went to see him on; and this I never told you before,
 he spoke very slowly and he said, "I know that you think that I
 have horns and cloven hooves." And I thought to myself, my God. . .
 do I say yes Sir or no Sir. (laughs)

Goodman: Would you like to stop for just a minute and take a rest?

Tiltman: Yes.

Tiltman: At one time - I guess it will have to be struck out
 eventually - At one time, our Director, ^{Sir Edwin} ~~Sherman~~ Travis, had the
 bright idea - suggestion - (garbled) the whole of our Japanese
 military party, working with all the people, and he didn't consult me.
 I was the chief cryptographer, and he put it up as a paper to our
 Board, this suggestion, and I wrote a short paper with about four
 headings of why I didn't think it would be a good idea. The princi-
 ple^a one being that I felt very strongly that we should send 700
 people over here and they would be distributed in homes and would
 be lost away and make no contribution at all. And for that reason,
 the condition had to be known that we would look after these people.
 That they would have to work with one another, and he didn't want
 that. I then saw the paper that ^{Sir Edwin} ~~Sherman~~ Travis, I hope this won't

go down on tape, read for the Board, and he hadn't included my remarks. So this was the last time I ever stood up to him unless there was some really big issue involved. I said, "If you don't add my remarks on this, you can tell the Board you just haven't got me behind you". So he added my remarks on it, and it was turned down.

Goodman: I can't imagine what advantage that would serve to...

Tiltman: It was just, it was just a dream of his - that if you really wanted to make a great contribution to British-American combined operations, this would be the key to it. It went nowhere. It never got to this side.

Goodman: How about - to get back to some of our names, Carter Clark^e?

Tiltman: Carter Clark^e was a very good friend to me. He told me all sorts of things that nobody else could. I can't remember them now. His whole attitude of everything was so ^{frankly} ~~practically~~ colored by politics. He was a tremendous Republican politician; a great friend of Tom Dewey's. After the war, shortly after the war, about in '47, when you talked to him, always he prefaced every remark with, "Since that man curled up and died", this was President Roosevelt. (laughs)... this was President Roosevelt (laughs). He was amusing to talk to. It was difficult to take him seriously at times. But he did...he had some important functions...Pearl Harbor...he was sent up to destroy..

Schorreck: Oh, yes . . . the Marshall-Dewey letter . . . the correspondence . . . right.

Tiltman: They used him for that because he was a politician.

Schorreck: A friend of Dewey's. Of course, he ran the special branch, which was getting information from the Signal Intelligence Service, as well . . .

Goodman: In the War Department.

Schorreck: In the War Department.

Goodman: Did you incidentally ever sit in any of the sort of events; the things that took place in the War Department, as a result of your relationship to mister . . . or Colonel Clark²? None of the briefings or that sort of thing?
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Tiltman ^b
Goodman: You mentioned that he occasionally shared special information with you. Can you recall any of that?

Tiltman: Yes. Whether it's true or not . . he told me what the reason was, why General Strong refused to let our man Turing know (garble). Strong used every now and then to say, "Your man, Turing, who says he comes from the Post Office". This was one of those unanswerable things - I had to stop thinking the whys. He not only didn't come from the Post Office, but he couldn't possibly ever have said it. He was a permanent member of Bletchley Park and (?). What were we saying before that?

Goodman: About Clark^e..

Tiltman: Carter Clark^e?

Goodman: And his telling you about...

Tiltman: Carter Clark^e...Carter Clark^e told me that the reason why General Strong refused to let Turing see this bit of equipment, I believe it was, was that there was a General on General Strong's staff who belonged to the ITT, and who saw in one of the papers the word "exploitation" and exploitation only meant one thing to him - this was commercial exploitation. He persuaded Strong to stop this incident that might lead to the British horning in on ITT. Whether it was true or not, I don't know.

Schorreck: I have got some other names here...

Tiltman: Go ahead.

Schorreck: We've talked about Wenger and Redman and I would assume that Lou would ask about McCormick and Telford Taylor, so I'm not going to ask about them...

Tiltman: We touched on those.

Schorreck: We touched on those.

Tiltman: And I don't think I have any more.

Schorreck: Ok, fine. How about Pres Carrier, as a cryptanalyst?

Tiltman: I would say very good. He happens to be my best friend in this business. He's been with me for ^{the last few days} ~~about 3 years~~. I would say a very good, actually hard working when he was young. Really taught himself Japanese. He's the only man I've ever known who taught himself Japanese, under such circumstances. I would say a very good working cryptanalyst, but my whole feeling about Pres Courier is colored by the later stages of his career when he...when nobody...there's never been anybody to replace him. He could walk into any office from the Director down and criticize anything that went on. He was a most valuable person. He knew everything...but, he developed this really after the war from the time he became SUSLO in England, when he started to develop this mythical kind of power.

Schorreck: How would you equate him with Frank Raven - as a cryptanalyst?

Tiltman: All of them had this curious flair; I can't think of anybody quite to compare with them.

Goodman: I think the word which is used frequently is "genius-like" flair. He just seemed to be able to go to the right thing.

Tiltman: Yes, he went straight there instead of getting sidetracked. What was the name of the naval captain who was in charge of the Japanese naval effort in Washington; who was a professor of philosophy?

Schorreck: Japanese Naval?

Tiltman: Yeah...

Schorreck: Can't think of it...

Tiltman: Short man...like...organized the...was the organizing head...

Schorreck: Mason?

Tiltman: Mason was a fantastic man.

Schorreck: Rudy Mason...?

Tiltman: I'm not talking about Rudy Mason. Rudy Mason was a fantastic man. Very fine Japanese scholar. As far as I know, he scanned every telegram at one time...every telegram that was ever issued or translated by the naval section. And he lived, of all places, in Manassas. He used to drive home every night and come back the next morning. When he had time to sleep, I don't know.

Goodman: That was when it took awhile to get to Manassas - back and forth - it was a long journey.

Tiltman: Yes, he was a wonderful man.

Schorreck: Did you ever know Joe Roch^efort?
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Tiltman: No, I never met him.

Schorreck: How about John Leitwiler?

Tiltman: I've met him.

Schorreck: Or Rudy Fabian?

Tiltman: Fabian, I met once or twice; not very much. Fabian was here after the war. Leitwiler, I met when I was SUKLO.

Schorreck: Have we discussed any of the British side? R.V. Jones?

Tiltman: R. V. Jones, I met, but I didn't have anything to do with him personally. Have you read his book?

Schorreck: No, I've ordered it.

Tiltman: It's the only...

Schorreck: The Wizard War.

Tiltman: The Wizard War.

Schorreck: It's supposed to be quite good.

Tiltman: It's very good, and if you take it as what he believed to be the truth, it's absolutely dead-on true all throughout. I think he makes exaggerations of his own responsibility for winning the war a little bit, and he has a certain obvious prejudice, personal prejudice. I think it's the only book that's been written about us.

Schorreck: That's any good.

Tiltman: I recommend it, really, I do.

Goodman: I'm on the waiting list.

Schorreck: I've ordered my copy. I hope I get it quick.

Tiltman: I've lent it around.

Schorreck: We've talked about Hugh Alexander and Hugh Foss and ~~Durwin~~ ^{Dillwyn} Knox and Frank Birch...

Tiltman: I hope I didn't say too much about Knox.

Schorreck: No, No, No, No

Goodman: But if you'd like to say some more, you could.

Tiltman: I'll leave well enough alone.

Schorreck: Well, those are the names that I was particularly interested in. I would ask you a question as to how you thought different leaders reacted to communications intelligence...
Montgomery, Churchill, Roosevelt, Marshall....

Tiltman: I doubt if I have anything to answer. I didn't have anything to do with the reporting end.

Schorreck: Well....

Goodman: Did you ever get feedback from people about the intelligence which was gained from...for example, did any of them ever visit Bletchley Park?...say, to the force at large

Tiltman: Everybody visited. I had a wonderful day one day. I took..we had Doolittle and Spaatz to lunch, and I took Doolittle and Spaatz.

Goodman: Is that right?

Tiltman: We had everybody - Churchill...we had all our chiefs of staff...all visited and all made general appreciative noises and so on.

Goodman: When they came out for visits like that, did you take them through and show them what was being done and explain the process to them?

Tiltman: Yes.

Goodman: Really, so they all had a fairly good understanding of the work underlying where their intelligence was coming from?

Tiltman: Did I tell you about meeting with Churchill?

Goodman: No.

Tiltman: It's only a story, but it's a good story. He was visiting us for a length of time; I don't even remember the date - must have been sometime in the early summer of 1941, because I was working on the Tunny machine or something like that. And I was given the honor of the first ^{ag} with Churchill. Our director said, "Now John, ten minutes, no more". So, I went in, shook hands, Churchill sat down at my desk and then he said, "Now, tell me everything you do", and I looked up at Travis, and Churchill instantly spotted this and said, "Don't take any notice of that man". He then looked down at my desk and...I'll show you... you've seen this, haven't you...this is a photograph of one of the intercepts on the Tunny machine - it was taken on Hellschreiber.

Goodman: Ah, yes.

Tiltman: It was in the ^{is?} peculiar ^{lt?} revoking Purple and you couldn't read it very well, and he looked down at my desk and said, "My God, do you have to look at those things all day?".

Schorreck: I met Dr. ^{Heid} ~~Heidel~~ in Europe.

Tiltman: Oh, did you?

Schorreck: Some years ago, yes. I was in NATO and....

Tiltman: Was he German?

Schorreck: Yes, German...I had the machines right in front of my desk.

Tiltman: I had two purposes in the war - I got two Hellschreibers flattened. (laughs)

Schorreck: He was trying to re-establish his, reestablish German industry by trying to sell some Hellschreiber cipher equipment to us. What did you proceed to do with Mr. Churchill?

Tiltman: Oh, I don't remember. It didn't last very long, because I mean I was in all sorts of things - the Tunny material was quite new - it had been intercepted on search; we didn't really know what it was. It was brought straight to me; there were certain things that we knew about it.

Schorreck: Were the Americans there by that time?

Tiltman: Sinkov and Currier had gone by then.

Goodman: So he didn't meet any Americans at that time.

Tiltman: No. I don't think anybody...I don't think there were ever any more Americans there until after Pearl Harbor.

Goodman: That's right.

Tiltman: Probably Neff and

Goodman: That's right.

Tiltman: Neff and Johnson, who is dead.

Goodman: Paul Neff and a ...

Tiltman: Roy Johnson

Goodman: Roy Johnson

Tiltman: _____ but I don't think there was anyone there before Sinkov's visit and the period after Pearl Harbor.

Goodman: Do you recall most of the visitors over the war period as either British or Americans, or was it a mixed bag or what? We're sort of interested in whether American... whether many of the senior American commanders who really knew what was behind some of the intelligence they received through special channels...

Tiltman: I don't really know.

Goodman: You can't remember? It's a difficult question.

Schorreck: Well, I only have a few more questions, Brigadier. One of them is, and I guess all these are directed toward you as being the senior cryptanalyst in the business, I think the first one would be your reaction to the idea of imposing bureaucratic levels, or echelons, between those who do the cryptanalysis and those who make the decisions, in what is termed now, the interpreters of the intelligence. Do you agree with that kind of business or do you think that the people who are producing the intelligence ought to be the ones interpreting it, and giving it straight to the decision-makers...the people who...the tactical people.

Tiltman: Doesn't sound to me as if it would work that way.

Goodman: Well, to focus it, when you first entered the business and for quite a long while, you worked on a text, you literally delivered it to the people who were going to use it - and there were not a lot of people to go thru.^{ugh.}

Tiltman: Yes

Goodman: Now you work on text and there are nine million scholars.....

Tiltman: Yes

Schorreck: And it's gone...it's gone.

Goodman: And it strikes us that you're in the best position to know exactly what you've got - not somebody down at DIA - he doesn't know what is involved in all this business - and yet that was being done - is that this Agency and the cryptanalysts inside it and everyone else are being buried under layers and layers and layers of bureaucracy.

Tiltman: Yes, that's true. My personal experience of that is from the beginning of World War II, I ~~suddenly~~^{certainly} didn't have any time to take any interest at all in the output. I mean, I was involved in cryptanalytic diagnosis and a certain amount of administrative duty. I was responsible for the technical security of different ciphers, and that sort of thing, and the one thing I really had virtually nothing to do with, what happened after the stuff went out.

Goodman: And you don't really think you would have had time to do anything with it anyway . . .

Tiltman: I don't think I would have had any contribution to make. I was much, too much, involved with cryptanalysis. But, before the war, when I was in India, and the party was four and five strong, at one time when we had trouble with a Russian interpretor - I assume you might have already heard this - at one time I used to have do what T.A there was, visit the section, give them their tasks, diagnose the cipher, break the new cipher, and break the code . . and don't argue what . . .

Goodman: What it meant.

Tiltman: What it meant. I don't see how it could have worked during the war.

Goodman: That's interesting. Have you thought about the way in which a National SIGINT effort ought to be organized?

Tiltman: Well, we talked about it at the end of World War II. In fact, we had a formal conference, in I suppose . . .

Goodman: Is this the joint . . .

Tiltman: In early '45 or either '44; Travis instituted this conference on post-war organization, and I was in charge of the sub-committee which dealt with cryptanalysis and traffic analysis. Of course, they had all kinds of trouble, because I knew all about cryptanalysis, but traffic analysis. . . everyone - everybody who gave evidence . . . traffic analysis was more ^{easier} easier-to understand.

As far as the organization was concerned, I think at the end of the war, I completely misunderstood how the emphasis would gradually go over from cryptanalysis to SIGINT as a whole. I mean, my upbringing was younger people would make better cryptanalysts. The rest were just a lot of hangers-on. Being as far as I know, I misunderstood what they meant.

Goodman: That's a very interesting admission. That's unusual. Was it a suddenness of the dawning of that thought, or did you just gradually come to that?

Tiltman: Well, you see, the diagnosis, the most difficult part of the cryptanalysis, seemed to me to be on a different plane from everybody else. In fact, I came up with the suggestion once that cryptanalysts should be in a special world. I had still more problems with a member of the Secret Service Commission, when I was trying to explain to him how we had - how I had arrived at the projected peacetime establishment. And I explained to him in very lively gestures, and then I said, "If you give us half the numbers and pay them double, then you'll really see something."

Goodman: (laugh)

Tiltman: We didn't go around anymore. That shows you how - what my attitude was. To a certain extent it was true before the war, and during the war, such words came in as "fusion", and that sort of thing.

Goodman: You saw the slow evolution of that process. I don't think anybody could have forecast either of those sort of information explosions which occurred in governmental communication.

Tiltman: More names? (^{turned off machine} missing on tape) training in cryptanalysis. When I first came to the office, nobody would tell you anything; you had to find out for yourself. Early in the war; fairly early in the war, I devised a training program for the entire department. I don't know why, I think it was a really a rather successful idea. We had a course at Bedford for all kinds of people, with all kinds of information, because normally it was a 3-month course. It was supposed to assess what the best use of a particular man was.

Goodman: Was this a training in cryptanalysis?

Tiltman: Yes. Yes, it was entirely unpractical. It...this was an introduction to it before they ever came near Bletchley Park. It was not...there was no military emphasis or anything like that.

Goodman: ^AAlright, ok..so it was in effect a basic cryptanalysis course?

Tiltman: Yes. Basic cryptanalysis. It was very successful. A lot of our best cryptanalysts came through that course.

Goodman: Mr. Friedman joined you in that as you very well know, and I think Callihamos later, you know, in his Basic Military Cryptanalysis Parts I and II, the history of that goes back quite a long way from the American side, with, I think Friedman giving lectures as early as 1921.

Schorreck: Safford was using that as a correspondence course in the '20s with Roch^{efort}ford and Hamm writing and all those guys.

Tiltman: They did much more in training than we did.

Goodman: And interestingly...that had come from a signal school in the U.S. forces in, I think 1914...

Schorreck: 1911, 12, and 13

Goodman: 11, 12, and 13...1911, 12, and 13, when Parker Hitt, Mauborgne, and his contemporaries were...prepared courses in it. We have been able to find some of those...

Schorreck: We have those technical papers.

Tiltman: I also, having had a good deal to do with the French in the beginning of the war. They had these books on cryptanalysis published; they had the whole thing simplified down, and yet they weren't very good at cryptanalysis. They didn't have much success at all. Their only success was the Enigma, which was not really a French success at all, because they imported the Polish mathematicians to do the analysis.

Goodman: Did everybody do...

Name rendered here as "Baudouin" is in fact Bortnowski

Tiltman: Just a minute, sorry. . . At the beginning of the war, we had fourteen French Naval officers in Bletchley Park and four Air Force led by Baudouin, who wrote a book. Baudouin was regarded as being a top-rated cryptanalyst, and after the fall of France, Baudouin came to me and . . . He was killed, by the way, in a plane when General Sikorssky (sp.) . . . Baudouin came to me and he said, "France is gone. There are four of us - you're stuck with us . . . four very highly ~~acclaimed~~ ^{trained} cryptanalytic technicians. Give us the problem and if we can help you, we'll do our best.". I gave them the Japanese military attache, and they made the most awful, God-given mess of it . . . I can't even describe. It took days to disentangle the papers afterwards. They had gone at it completely wrong. I mean, this is the sort of feeling I have about it . . . that you can't train anybody. . . you can't train people in cryptanalysis . . . you couldn't train people in cryptanalysis as you would introduce a scientific course or something like that. The only way for you to train people is to stimulate their intelligence and their imagination in some way.

Schorreck: Is that any different from today?

Tiltman: I don't know. I wouldn't think so.

Goodman: Did your 3-month course continue during the war?

Tiltman: All through the war.

Goodman: All through the war.

Tiltman: Even after Pearl Harbor, it was clear that we didn't have enough Japanese interpre^etors and I instituted; I got permission from the war office to use my training establishment for a training experiment in the Japanese language, which was in its own way very successful. Special difficulties about Japanese language project. In fact, I...there was one day when the School of Oriental Studies, part of London University, studying oriental language, invited me to bring my chief instructor and a couple of students up as they'd heard about us. I...my chief instructor couldn't explain anything...I had to explain, although he was an old, old naval instructor. I took two bright boys of mine from the school in Japanese. We were met by the director of the School of Oriental Studies and a very formidable lady _____ and a Japanese named Yoshitake and, to my horror, General Piggott...General Piggott, who was a very famous Japanese scholar and had been our military attache in Japan before the war and had written the standard book on handwritten Japanese. And they walked side by side down the main passage of the school. By way of counsel, I said to him, "You don't remember me, sir, but I served with you at such and such a time". In a very loud voice he said, "No, I don't remember you, but your name is almost a household word around here." Normally one would know the answer to this, but I said, "You mean a byword, sir". I explained we didn't have time to teach spoken Japanese like we wanted, so we had very special selected students who were all fascinating scholars.

We gave them a feel of the written language as it's taught. Then we'd been talking about this and General Piggott said to me, "I want to hear one of your boys read some Japanese." I said, "Have a heart, General, I told you we don't have anything to do with the spoken." He said, "I just want to hear what sort of noises they make." To my horror, Yoshitake produced out of his pocket, a piece of green paper covered with what I regarded _____ . One of my boys took this in his hand, and he not only managed , they'd only been working four months, managed with very little problem to get on, only leaving off the few things he didn't know. Then that went full swing until the school of oriental studies decided to start their own Russian course, but they...whereas we were working 12, 14, 15 hours a day and under supervision as far as we could get it together, they were trying to give about two lectures a week, but I'm sure all that's unnecessary.

Schorreck: Very interesting. That's all I have, Brigadier.